

## Patent Abstracts of Japan

PUBLICATION NUMBER : 01263208  
PUBLICATION DATE : 19-10-89

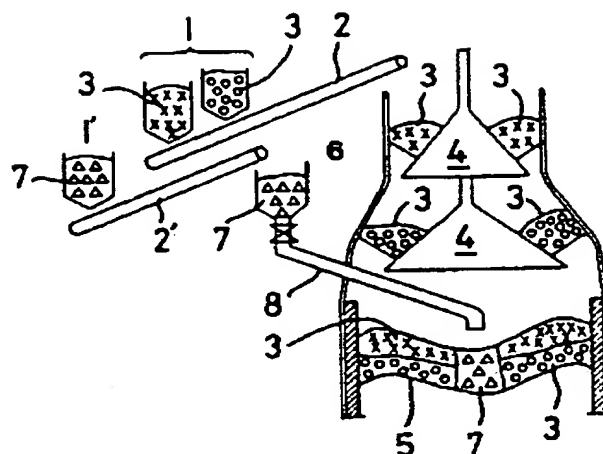
APPLICATION DATE : 12-04-88  
APPLICATION NUMBER : 63089718

APPLICANT : SUMITOMO METAL IND LTD;

INVENTOR : SUYAMA SHINICHI;

INT.CL. : C21B 5/00

TITLE : METHOD FOR OPERATING BLAST FURNACE



**ABSTRACT :** PURPOSE: To suppress the rise of the unit cost of coke in the operation of a blast furnace by charging fine coke having a specified CSR index, high reactivity and a specified size into the central part of the blast furnace.

CONSTITUTION: When raw materials 3 to be charged in storage tanks 1 for a blast furnace are charged into the blast furnace having the surface 5 of charge with bell type chargers 4, fine coke 7 having  $\leq 50$  CSR index and high reactivity in a hopper 6 is directly charged beforehand into the central part on the surface 5 through a chute 8. Most of the coke 7 has 20-30mm size. In the case where the conditions of the furnace deteriorate, fine coke having  $\geq 60$  CSR index and low reactivity is charged into the central part. Most of the fine coke has  $\geq 40$ mm size. The rise of the unit cost of coke in the operation of the blast furnace can be suppressed.

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PUBLICATION NUMBER : 59143009  
PUBLICATION DATE : 16-08-84

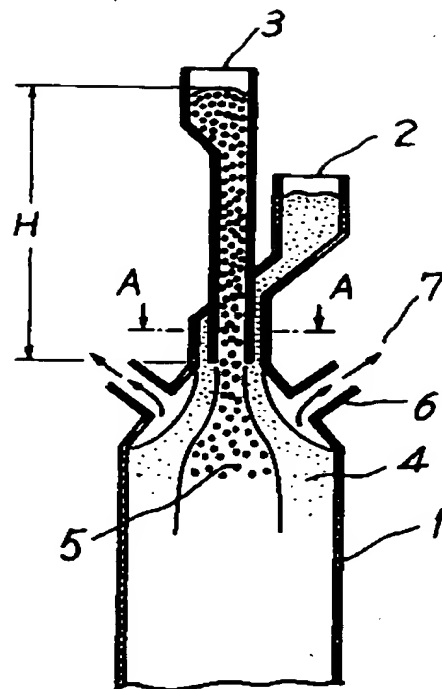
APPLICATION DATE : 07-02-83  
APPLICATION NUMBER : 58017474

APPLICANT : KAWASAKI STEEL CORP;

INVENTOR : KADOTO MITSUO;

INT.CL. : C21B 11/02 F27D 3/10

TITLE : METHOD AND DEVICE FOR  
CHARGING RAW MATERIAL TO MELT  
REDUCING FURNACE



ABSTRACT : PURPOSE: To make the temp. of the top gas of a melt reducing furnace high and decrease the thermal load in the furnace wall part, to extend the life of the refractory material used for the furnace wall, by charging respectively separately the coarse grain raw material among preliminarily screened raw materials into the central part of the furnace and fine grain raw materials into the peripheral wall part of the furnace from the top of said furnace.

CONSTITUTION: A preliminarily screened coarse grain raw material 5 is charged from the top of a melt reducing furnace 1 into the central part of the furnace 1 through a hopper 3, and a fine grain raw material 4 is charged through the hopper 2 to the peripheral part of the furnace 1. Powder oxide is blown from the lower part into the furnace 1 packed therein with a carboneous material such as mainly coke or the like to induce a reduction reaction and the resulting product of the reaction thereof is taken from the furnace bottom during this time. The resistance against the rise of the gas in the furnace in the central part of the furnace 1 is decreased by the above-described charging method for raw materials thereby decreasing the pressure drop, and central flow is formed in the gaseous flow in the furnace. On the other hand, the flow rate of the gas is decreased in the furnace wall part and thermal load is decreased. The furnace top gas is thus made high in temp. and the life of the refractory material used for the furnace wall is extended.

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PUBLICATION NUMBER : 60251208  
PUBLICATION DATE : 11-12-85

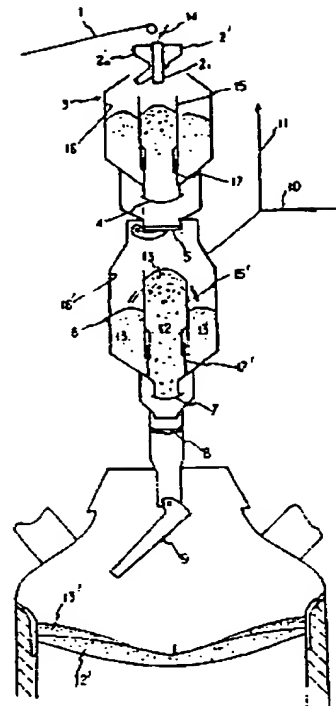
APPLICATION DATE : 26-05-84  
APPLICATION NUMBER : 59107031

APPLICANT : NIPPON STEEL CORP;

INVENTOR : IWANAGA TAKEICHI;

INT.CL. : C21B 7/20

TITLE : METHOD FOR CHARGING RAW MATERIAL TO BLAST FURNACE



**ABSTRACT :** **PURPOSE:** To attain a satisfactory and stable furnace condition by storing separately or superposedly, for example, coarse grained raw material and fine- grained raw material in a hopper, discharging separately and successively the coarse-grained raw material and the fine-grained raw material from the hopper in one batch and charging the raw materials to the respective desired positions via a chute in the furnace.

**CONSTITUTION:** The raw material from a charging belt conveyor 1 is classified by a classifying damper 14. The coarse-grained raw material 12 is charged into the inside cylindrical part 15 of the upper hopper 3 and is further charged into the inside cylindrical part 15' of the lower hopper 6 and is stored therein. The fine-grained raw material 13 is charged into the outside cylindrical part 16 of the upper hopper 3 and is further charged into the outside cylindrical part 16' of the lower hopper 6 and is stored therein. The pressure in the hopper 6 is equalized and thereafter a gate valve 7 and a lower seal valve 8 are opened to discharge first the material 12 in the part 15' into the chute 9 in the furnace. Said material is charged into the desired position in the furnace by the swiveling and tilting operation of the chute. The raw material 13 in the part 16' is similarly charged into the furnace in succession thereto.

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